NOTES AND QUERIES.

ELECTRICITY.—I wish to inquire if it has been determined whether upon the union of two currents of electricity of different electromotive forces, they form one current of an intermediate intensity, as two streams of water of different temperatures would form one of an intermediate temperature. Or, whether they each retain its own E. F. M., and follow the terms of its own intensity. And, if the problem has been determined, where I can find the particulars.

And, further, if the two retain their separate identities, whether any instrument has been made to measure the different quantities and intensities which pass in a single conductor.

This is a very important question in view of the great practical problems which we have now to solve in regard to the production and use of electricity.

SAML. J. WALLACE.

THE COLOR CHANGES OF AXOLOTL.—Prof. Semper has lately examined axolotl with regard to the influence of light on its color (*Würzburg Phys. med. Ges*). When young axolotl are reared in darkness they become quite dark; nearly as dark in red light; in yellow, on the other hand, pretty bright; and brightest in bright daylight. The difference is connected not only with the chromatic function found in various degrees in all amphibia, but on pronounced formation of a peculiar diffuse yellowish green coloring matter, increase of white, and diminution of dark chromatophores. Further, when axolotl are exposed to daylight in white dishes covered with white paper, much less dark pigment forms in them than when they are kept in white dishes without a paper cover (other things equal); though in the latter case they are apparently exposed to the most intense light; these darker axolotl are, however, still much brighter than those reared in red light or in darkness. Since (as experiment showed) the white covering paper let through much light, but very little of the chemical rays, it appears that chemical rays play no part in the formation of pigment. But the causes of the whitening in bright daylight and the darkening in absence of light remain unknown as before.

THE BLOOD OF INSECTS.—Operating with the larva of *Oryctes nasicornis*, M. Fredericq has observed (*Bull. Belj. Acad.*) that the blood of the animal, drawn off in a small glass cannula, is a colorless liquid, but on exposure to the air presently takes a decided brown color, and coagulates. The coloration he regards as a purely cadaveric phenomenon. The substance which becomes brown is probably formed in the moment of coagulation, and does not serve in the body as a vehicle between the external air and the tissues, like *hæmoglobin* in Vertebrates and many Annelids, *hæmocyanin* in Crustaceans, &c. When the larva is kept a quarter of an hour in hot water (50° to 55°), the blood extracted does not coagulate or become brown. Once the substance which browns is produced, even a boiling temperature does not prevent its browning. The brown substance once formed is very stable, not being decomposed either by acids or alkalies, and not made colorless by being submitted to vacuum or kept in a closed vessel. The existence of an intermediary in insects corresponding to hæmoglobin M. Fredericq thinks very problematical in view of the anatomical system, letting air penetrate into the heart of the tissues.

METEOROLOGICAL REPORT FOR NEW YORK CITY FOR THE WEEK ENDING OCT. 15, 1881.

Latitude 40° 45′ 58″ N.; Longitude 73° 57′ 58″ W.; height of instruments above the ground, 53 feet; above the sea, 97 feet; by self-recording instruments.

OCTOBER.	BAROMETER. MEAN FOR THE DAY. Reduced to Freezing.	BAROMETER. MAXIMUM. Reduced to Freezing.	BAROMETER. MAXIMUM. Time.	BAROMETER. MINIMUM. Reduced to Freezing.	BAROMETER. MINIMUM. Time.	THERMOMETERS. MEAN. Dry Bulb.	THERMOMETERS. MEAN. Wet Bulb.	THERMOMETERS. MAXIMUM. Dry Bulb.	THERMOMETERS. MAXIMUM. Time.	THERMOMETERS. MAXIMUM. Wet Bulb.	THERMOMETERS. MAXIMUM. Time.	THERMOMETERS. MINIMUM. Dry Bulb.	THERMOMETERS. MINIMUM. Time.	THERMOMETERS. MINIMUM. Wet Bulb.	THERMOMETERS. MINIMUM. Time.	MAXI'M In Sun.
Sunday, 9--	29.899	29.900	9 a. m.	29.862	3 a. m.	63.3	59.6	71	0 a. m.	64	10 a. m.	55	12 p. m.	55	12 p. m.	100.
Monday, 10--	30.069	30.324	12 p. m.	29.900	0 a. m.	54.6	49.3	64	2 p. m.	55	12 m.	41	12 p. m.	40	12 p. m.	128.
Tuesday, 11--	30.426	30.478	9 a. m.	30.324	0 a. m.	44.7	41.7	51	5 p. m.	47	5 p. m.	37	5 a. m.	37	7 a. m.	119.
Wednesday, 12--	30.179	30.396	0 a. m.	30.096	12 p. m.	54.0	52.0	57	2 p. m.	55	3 p. m.	41	2 a. m.	41	2 a. m.	92.
Thursday, 13--	29.968	30.096	0 a. m.	29.908	4 p. m.	65.7	62.3	73	4 p. m.	67	4 p. m.	55	6 a. m.	55	6 a. m.	130.
Friday, 14--	30.239	30.298	9 a. m.	30.000	0 a. m.	50.0	46.6	60	0 a. m.	57	0 a. m.	45	8 a. m.	43	8 a. m.	120.
Saturday, 15--	30.035	30.244	0 a. m.	30.006	12 p. m.	62.0	58.3	69	3 p. m.	63	4 p. m.	50	0 a. m.	48	0 a. m.	121.

		Dry.	Wet.
Mean for the week	30.123 inches.	56.3 degrees	52.8 degrees.
Maximum for the week	at 9 a. m., Oct. 11th 30.478 "	at 4 pm 13th 73. "	at 4 pm 13th, 67. "
Minimum "	at 3 p. m., Oct. 9th 29.862 "	at 5 am. 11th 37. "	at 7 am 11th, 37. "
Range	.616 "	36. "	30. "

OCTOBER.	WIND. DIRECTION. 7 a. m.	2 p. m.	9 p. m.	VELOCITY IN MILES. Distance for the Day.	FORCE IN LBS. PER SQR. FEET. Max.	Time.	HYGROMETER. FORCE OF VAPOR. 7 a. m.	2 p. m.	9 p. m.	RELATIVE HUMIDITY. 7 a. m.	2 p. m.	9 p. m.	CLOUDS. CLEAR, 0 OVERCAST. 10 7 a. m	2 p. m.	9 p. m.	RAIN AND SNOW DEPTH OF RAIN AND SNOW IN INCHES. Time of Beginning.	Time of Ending.	Duration. h. m.	Amount of water	OZONE.
Sunday, 9-	n. w.	w. n.w.	w. n.w.	133	½	1.00 am	.509	.438	.449	74	68	100	8 cu.	9 cu.	0	-----	----	-----	--	5
Monday, 10-	n.	n. n. w.	n. n. w.	242	7	3.40pm	.321	.285	.251	74	48	84	0	3 cu.	0	0.30pm	5.00pm	4.30	.19	6
Tuesday, 11-	n. e.	n. e.	s. s. e.	240	6¼	0.15 am	.207	.193	.273	90	57	85	0	0	0	-----	-----	-----	--	0
Wednesday, 12-	s. w.	s.	w. s. w.	158	4¾	1.50pm	.297	.378	.420	85	81	93	9 cu.	10	10	-----	-----	-----	--	0
Thursday, 13-	w. s. w.	w. s. w.	w.	146	8¼	9.00pm	.420	.559	.599	93	71	84	6 cir. cu.	8 cu.	10	0.15pm	4.00pm	3.45	.09	7
Friday, 14-	n. e.	e.	s. e.	198	4	9.10am	.249	.257	.308	77	66	79	0	0	5 cu.	-----	-----	-----	--	1
Saturday, 15-	s. s. w.	s. s. w.	s. s. w.	197	3¼	10.20pm	.349	.457	.529	80	69	89	10	1 cu. s.	0	-----	-----	-----	--	0

Distance traveled during the week	1,314 miles.	Total amount of water for the week	.28 inch.
Maximum force	8¼ lbs.	Duration of rain	8 hours, 15 minutes.

DANIEL DRAPER, Ph. D.

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